

measuring the dielectric constant of the subsurface at the plurality of vertical intervals utilizing the cone penetrometer tool;

estimating the bulk porosity of the subsurface from the measured bulk density; and

calculating the percent non-aqueous phase liquid saturation at the plurality of vertical intervals from the dielectric constant and the bulk porosity.

**IN THE SPECIFICATION:**

Please replace paragraph [0039] with the following amended paragraph.

The dielectric constant of a medium is the ratio squared of the electromagnetic propagation velocity in a vacuum relative to the velocity in that medium. The variables which can affect this electrical property include soil texture, water content and density. The dielectric constant values that can be used to identify materials in the subsurface are presented as shown in Table 1 of Fig. 1. It is known that DNAPLs have very low dielectric constant values (3-4) compared with water (80). Because the dielectric values vary greatly between water and DNAPL, displacement of pore water with DNAPL significantly changes the measured value of the bulk dielectric constant. Replacing water in pore spaces with DNAPL will cause a decrease in the dielectric constant.

Please replace paragraph [0037] with the following amended paragraph.

FIG. 18 is a flow diagram illustrating the method for detection and quantification of a non-aqueous phase liquid as described by the present invention.